



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,362	12/27/2005	Kazuyuki Mikubo	19453	6180
23389 7590 09/04/2009 SCULLY SCOTT MURPHY & PRESSER, PC 400 GARDEN CITY PLAZA SUITE 300 GARDEN CITY, NY 11530				
EXAMINER				
DUONG, THO V				
ART UNIT		PAPER NUMBER		
3744				
MAIL DATE		DELIVERY MODE		
09/04/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/562,362

**Applicant(s)**

MIKUBO ET AL.

**Examiner**

Tho v. Duong

**Art Unit**

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 7-16 is/are rejected.
- 7) ☒ Claim(s) 3-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

### **DETAILED ACTION**

Applicant's amendment filed 6/10/09 is acknowledged. Claims 1-16 are pending.

#### ***Response to Arguments***

Applicant's arguments filed 6/10/09 have been fully considered but they are not persuasive. Applicant's argument that Lee fails to disclose that the passages are formed directly on the panel, has been very carefully considered but is not deemed to be persuasive. Lee discloses (figure 27-28) that the passages (63) are formed directly on the panel.

Applicant's further argument that "wick" is both structurally and functional different than a circulation pump, has been very carefully considered but is not found to be persuasive. Applicant is reminded that the examiner must interpret the limitation as broadly as it reasonably allows. In this case, pump is defined as a device that raises, transfers, delivers, or compresses fluid especially by suction or pressure or both according to Merriam Webster Dictionary. Therefore, a wick, which delivers fluid by capillary suction from one place to the other place in the heat pipe, is reasonable to read as the circulation pump.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1- 6 and 11-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee (US 2003/0189815). Lee discloses (figures 27-28) a cooling device comprising a first cooling

Art Unit: 3744

panel in which a first passage (63) through which refrigerant circulates (refrigerant inside of a heat pipe passing through the passage), wherein the passage (63) is formed directly on the panel; a second cooling panel in which a second passage (63) through which the refrigerant circulates (refrigerant inside of a heat pipe passing through the passage), wherein the passage (63) is formed directly on the panel; the second cooling panel being disposed to oppose the first cooling panel; a circulation pump (wick) for circulating the refrigerant through the first passage and the second passage to diffuse heat transferred to the cooling panel and the second panel; the first cooling panel and the second cooling panel sandwiched there between an electronic circuit substrate (14); a coupling member (bridge 161 ) bearing the first cooling panel and the second panel for opening and closing with respect to each other; and the connecting member (161) has a flexibility; the first cooling panel is formed by bonding together a top heat radiation panel (94) and a bottom heat radiation panel (96) and a groove (99) is formed in the panel. Regarding claim 11, Lee discloses (figures 2-3) the first cooling panel (18) has an area smaller than an area of the second cooling panel (20). Regarding claim 12, Lee discloses (figure 2) that the first passage (27) has a width smaller than a width of the passage (28) (width is interpreted to be the insertion direction of the heat pipe). Regarding claim 13, the first panel (20) is considered to be the first panel and the first passage (28) has a depth larger than a depth of the second passage (27) (depth is interpreted to be the insertion direction of the heat pipe). Regarding claim 15, Lee discloses that at least one of the first or the second panel includes a strut (protrusion where hole (74) is formed on or 59) between the top heat radiation panel and the bottom heat radiation panel. Regarding claim 16, a fan (159) is attached to at least one of the first cooling panel or the second cooling panel.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Beam (US 4,674,565). Lee substantially discloses all of applicant claimed invention as discussed above except for the limitation that the pump is fixed onto a surface of the second cooling panel and a reservoir communicated with the second passage and disposed on a surface and within the second cooling panel. Regarding claim 7, Lee discloses (figure 2) the panel (20) includes a passage (heat pipe 20). Therefore, the inner surface of the heat pipe is also considered to be a surface of the panel. It is well known in the heat pipe art that a wick (pump) disposed onto an inner surface of the heat pipe. Beam discloses a heat pipe (20) that has a pump (wick 22) is fixed onto an inner surface of the heat pipe and a reservoir (22a) disposed on an inner surface and well within the heat pipe for a purpose of circulating fluid within the heat pipe and preventing dry out of the heat pipe during high thermal energy transfer condition. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Beam's teaching in Lee's device for a purpose of circulating fluid within the heat pipe and preventing dry out of the heat pipe during high thermal energy transfer condition.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Sagal (US 2001/0023762A1). Lee substantially discloses all of applicant's claimed invention as

discussed above except for the limitation of the top and bottom radiating panel is made of metal. Sagal discloses (figure 2 and paragraph 26) a heat radiation device that comprises a top and bottom radiation panel (16,18) are made of metal such as copper for a purpose of obtaining a high thermal conductivity radiating panel. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Sagal's teaching in Lee's device for a purpose of obtaining a high thermal conductivity radiating panel.

#### *Allowable Subject Matter*

Claims 3-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tyler J. Cheryl can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tho v Duong/  
Primary Examiner, Art Unit 3744